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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,292	12/11/2000	Paul E. Nikolich	100.165US01	3710

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EXAMINER	
SRIVASTAVA, VIVEK	

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 04/19/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/734,292	NIKOLICH, PAUL E.	
	Examiner	Art Unit	
	Vivek Srivastava	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

With respect to claim 26, Applicant argues that Gorman does not disclose or suggest supporting multiple upstream channels on a common coaxial cable. The Examiner concurs, however, as discussed below, it would have been obvious to modify Gorman to include this limitation.

With regards to claim 27, Applicant argues that transmission of unicast packets over a common frequency band does not meet the limitation of N contiguous downstream channels. The Examiner would like to direct Applicants to page 14 lines 29-31 of Gorman, the portions of which was also cited in the previous office action. Gorman states " In the preferred embodiment, a Media Access Control (MAC) Domain is an association on one more downstream channels...". It is clear that this disclosure of Gorman meets the claimed limitation of "N contiguous channels". It should be further noted that the claim recites "each MAC circuit supporting one of N contiguous downstream channels". The claim is in the alternative meaning that this limitation can be met by each MAC circuit supporting only one downstream channel. As a result, the Applicant's arguments are not persuasive.

Regarding claim 23, Applicant argues the reverse path multiplexor of Gorman receives inputs from many ports, e.g., cables, and directs this to an upstream port of the receiver card. This is the opposite of splitting. The Examiner concurs that a typical multiplexor combines many inputs to a single output, i.e. it combines and does not split. However, the multiplexor in figure 9 is not a typical multiplexor, in that it can the input ports (ports 1-8) can be "split" among output ports A and B by the A/B selector.

With regards to claim 1, Applicant argues that neither the White Paper or Big Band Networks discusses the location of the downstream spectrum nor is there any indication of how the downstreams are modulated or transmitted. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., location of the downstream spectrum) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It should be further noted that the Applicant's argue that the references fail to show how the downstream signals are modulate, however the claim fails to recite any particulars of modulation.

With regards to claim 1, Applicant argues that the Examiner, fails to show where the references, alone or in combination, teach or suggest the use of N contiguous downstream channels and a single upconverter. The Examiner has provided no

evidence to connect the teachings of the references with his conclusion on obviousness. As discussed above, Gorman discloses the claimed use of N contiguous downstream channels. The Examiner respectfully disagrees that the Examiner has provided no evidence to connect the teachings of the references with his conclusion on obviousness. The Examiner clearly states why it would have been obvious to use a single upconverter in lieu of a plurality. If Applicants request references to support this feature the Examiner would gladly furnish Applicant's with references.

Applicant argues that the Examiner has provided no specific application of the art to claim 11. The Examiner has provided no specific application of the art for the purpose of brevity and to avioid redundant rejections since the claimed limitations have been discussed with respect to the claims above.

With regards to claim 15, Applicant asserts that the references fail to teach or suggest upconverting a downstream signal having a plurality of data channels with a single upconverter. Further the references fail to teach or suggest, for each upstream port, separating out a plurality of upstream channels and separately downconverting the upstream channels. It should be noted that the claimed "upconverting a downstream signal having a plurality of data channels with a single upconverter" was met by the combination of Gorman and Bigband Networks as discussed in the rejection of claim 1. In addition, for each upstream port, separating out a plurality of upstream channels and separately downconverting the upstream channels was also met by Gorman in claim 1.

With regards to claim 19, Applicant argues that the Examiner failed to provide any specific comments on claim 19 and that the cited art fails to teach or suggest a single, shared upconverter that is adapted to upconvert a plurality of contiguous downstream channels. The Examiner has provided no specific application of the art for the purpose of brevity and to avioid redundant rejections since the claimed limitations have been discussed with respect to the claims above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Multimedia Traffic Engineering for HFC Networks (cited by Applicant) in view of Bigband Networks (WO 00/72509, cited by Applicants).

Considering claim 1, the Multimedia Traffic Engineering paper discloses a cable modem termination system (page 16) comprising a plurality of MAC domains having downstream communications one card and upstream communications on another card (page 16). Further, the Multimedia Traffic Engineering paper discloses "the CMTS MAC domain may have its downstreams one card with its upstreams on another card" (page

16) and thus discloses the claimed "N contiguous downstream channels with a single upconverter and each MAC circuit supporting a plurality of upstream channels".

The Multimedia Traffic Engineering paper fails to disclose a backplane interface, a packet processing engine coupled to the backplane interface and the plurality of media access controllers coupled to the packet processing engine.

Bigband Networks teaches a CMTS system (met by DOCSIS MAC coupled to upstream modulator in fig 8) which coupled to a packet processing switch engine and a OOB interface and also which is interface coupled to the fast Ethernet. It would have been obvious modify the Multimedia Traffic Engineering paper to include a backplane interface and a packet processing switch engine would have provided packet switching of received packets to/from subscribers and the out-of-band interface and Ethernet enabling reception of different types of information and rapid direction of packets to their correct destination (see page 36 lines 21-27 of Bigband Networks).

Considering claim 2, The Multimedia Traffic Engineering paper discloses the claimed DOCSIS standard (see page 52).

Considering claim 5, The Multimedia Traffic Engineering paper discloses that one card can be used for downstream and one card for upstream and also discloses the variable number of cards can be used (see page 16-17) and thus discloses the claimed single downstream port (i.e. with the use of 1 card) and a plurality of upstream ports (i.e. with the use of a variable or plural cards).

Considering claim 6, the combination of The Multimedia Traffic Engineering paper and Bigband Networks teaches the claimed limitation, wherein Bigband Networks

discloses the claimed "wherein the downstream port passes all downstream channels and each upstream port passes one or more upstream channel for each downstream channel" (see page 1 lines 25-29).

Claims 1 - 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman (WO 99/30449) in view of Bigband Networks (WO 00/72509 A2).

Considering claims 1 and 8, Gorman further discloses headend 201 (fig 2) comprises headend digital communications controller 103 which is defined by Gorman to be a cable modem termination system (page 4 lines 20-23). Gorman also discloses the headend controller may simultaneously provide service and control one or more downstream channels and one or more upstream channels (page 11 lines 10-12). Gorman further discloses a multi-channel cable modem termination system 103 (fig 3) has an Ethernet interface (fig 3) which meets the claimed "backplane" interface. The CMTS in Gorman further comprises common ATM switch 305 (fig 3), coupled to the Ethernet interface which processes packets by routing packets to/from cards 306 and card 313 (fig 3). Gorman further discloses receiver port card(s) 306 and transmit channel port card 313 which is based on the MAC protocol (see page 5 lines 2-4 and page 6 lines 3-5) and thus comprise "MAC circuits", wherein the transmit channel port card 313 unicasts a plurality of downstream channels to subscribers (see page 19 lines 1-10 and page 14 lines 29-31) via a single IF to RF upconverter 409 (fig 4), noting that fig 4 details the transmit channel port card 313. Gorman also discloses the broadly claimed splitter which is met by reverse path multiplexor 701 (fig 9) which "splits" ports

1-8 to port A and port B enabled by A/B selector 906 to separate a plurality of upstream channels. The reverse path multiplexor 701 feeds receiver port cards 306 (see fig 7 and fig 3) noting that each receiver port card has a tuner 503 (fig 5) which downconverts the received RF signal to IF signal (see page 20 lines 5-10), a QPSK/QAM burst receiver 504 demodulates the IF signal (page 20 lines 5-10).

Gorman fails to disclose the claimed separately modulating via plurality of downstream modulators, each coupled to a corresponding one of the MAC circuits to provide one of the downstream channels, a combiner coupled to the plurality of modulators, that is adapted to combine the plurality of downstream channels and an upconverter coupled to the combiner and the downstream channels into a plurality of contiguous frequency bands.

Bigband Networks discloses a plurality of downstream modulators 318 (fig 8) coupled to MAC circuits 330 (fig 8) for communicating channels to a plurality of remote modems. It would have been obvious modifying Gorman in view of Bigband Networks to include a plurality of downstream modulators coupled to MAC circuits and to use a combiner and a single upconverter to upconvert the downstream channels into a plurality of contiguous frequency bands would have enabled more efficient and faster modulation of the downstream channels and the use of a one converter would have enabled uncoverting a plurality of modulated downstream channels using a single in lieu of a plurality of upconverters.

Regarding claim 2 and 9, Gorman fails to disclose the claimed wherein the plurality of MAC circuits each comprise a MAC circuit that is adapted to conform with the data over cable service interface specification (DOCSIS) standard.

It would have been obvious to modify Gorman to include the DOCSIS standard to enable communication using a well known reliable standard or to enable compatibility between communication devices i.e., cable modems, CMTS etc. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gorman to include the claimed DOCSIS standard to enable communication using a well known reliable standard or to enable compatibility between communication devices.

Considering claims 3 and 10, Gorman discloses a transmitting upconverter 409 (fig 4) which transmits a plurality of downstream channels (page 11 lines 10-12, page 14 lines 29-31). Since a plurality of downstream channels meets the claims 'N' downstream channels limitation and since each channel inherently has a bandwidth, i.e. 'Y', Gorman discloses the claimed limitation.

Considering claim 4, Gorman discloses a plurality of receiver channel port cards 306 (fig 3) each comprising receiver tuner 503 (fig 5) which forwards upstream channel to circuits which employ the MAC protocol (see page 6 lines 3-5).

Considering claim 5, Gorman discloses a single transmit channel port card 313 (fig 3) and a plurality or receiver upstream port cards 306 (fig 3).

Considering claim 6, Gorman discloses the claimed wherein the downstream port passes all downstream channels and each upstream port passes one or more upstream channel for each downstream channel (page 2 lines 10-20, col 11 lines 10-12).

Claim 7 is met by that discussed above.

Claims 11, 12 and 14 are met by that discussed above.

Considering claims 13 and 17, Gorman fails to disclose the claimed wherein upconverting the downstream signals comprises upconverting signals to a band in the 90 to 870 MHz range. It would have been obvious to modify the upconverting range of 88 to 800 MHz (fig 4 item 409) to 90 to 870 MHz to provide a wider range or greater bandwidth for transmission.

Claims 15, 16 and 18 are met by that discussed above.

Claims 19 - 25 are met by that discussed above.

Regarding claims 34 and 35, claims 34 and 35 recite the same limitations as above and are rejected for at least the same reasons as provided above, claims 34 and 35 include the further limitation "supporting a plurality of upstream channels on the same coaxial cable" which is not disclosed by the combination of Gorman and Big Band Networks. It is noted that Gorman discloses a CATV distribution network consisting of standard coaxial cable and discloses two coaxial links 204 and 207 (fig 2) for coupling the headend 103 and analog TV programming 208 to fiber terminal 205 which in turn distributes signals to fiber node 211 and TV receivers 212 (see page 17 lines 5-9 and lines 19-27. It would have been obvious to one skilled in the art to reduce two coaxial

cables to one common cable to reduce both cost and space required in the system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gorman to include the claimed limitation to reduce the cost and space required in the system.

Claims 26 – 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman (WO 99/30449).

Considering claim 26, Gorman discloses headend 201 (fig 2), an optical distribution node 211 (fig 2) coupled to the headend over fiber distribution network and to subscriber homes via a coaxial distribution network, noting that node 211 performs optical-electrical conversion for converting an optical signal to an electrical signal or an electrical signal to an optical signal. Gorman further discloses headend 201 (fig 2) comprises headend digital communications controller 103 which is defined by Gorman to be a cable modem termination system (page 4 lines 20-23). Gorman also discloses the headend controller may simultaneously provide service and control one or more downstream channels and one or more upstream channels (page 11 lines 10-12) and thus discloses the claimed "cable modem termination system supports multiple downstream channels and multiple upstream channels".

Gorman discloses a CATV distribution network consisting of standard coaxial cable and discloses two coaxial links 204 and 207 (fig 2) for coupling the headend 103 and analog TV programming 208 to fiber terminal 205 which in turn distributes signals to fiber node 211 and TV receivers 212 (see page 17 lines 5-9 and lines 19-27). Gorman

fails to disclose the claimed common coaxial cable. It would have been obvious to one skilled in the art to reduce two coaxial cables to one to reduce both cost and space required in the system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gorman to include the claimed limitation to reduce the cost and space required in the system.

Considering claim 27, Gorman discloses a multi-channel cable modem termination system or headend controller 103 (fig 3) which has an Ethernet interface (fig 3) which meets the claimed "backplane" interface. The CMTS in Gorman further comprises common ATM switch 305 (fig 3), coupled to the Ethernet interface which processes packets by routing packets to/from cards 306 and card 313 (fig 3). Gorman further discloses receiver port card(s) 306 and transmit channel port card 313 which based on the MAC protocol (see page 5 lines 2-4 and page 6 lines 3-5) and thus comprise "MAC circuits", wherein the transmit channel port card 313 unicasts a plurality of downstream channels to subscribers (see page 19 lines 1-10 and page 14 lines 29-31) via a single IF to RF upconverter 409 (fig 4), noting that fig 4 details the transmit channel port card 313.

Regarding claim 28, Gorman fails to disclose the claimed wherein the plurality of MAC circuits each comprise a MAC circuit that is adapted to conform with the data over cable service interface specification (DOCSIS) standard.

It would have been obvious to modify Gorman to include the DOCSIS standard to enable communication using a well known reliable standard or to enable compatibility between communication devices i.e., cable modems, CMTS etc. Therefore, it would

have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gorman to include the claimed DOCSIS standard to enable communication using a well known reliable standard or to enable compatibility between communication devices.

Considering claim 29, Gorman discloses a transmitting upconverter 409 (fig 4) which transmits a plurality of downstream channels (page 11 lines 10-12, page 14 lines 29-31). Since a plurality of downstream channels meets the claims 'N' downstream channels limitation and since each channel inherently has a bandwidth, i.e. 'Y', Gorman discloses the claimed limitation.

Considering claim 30, Gorman discloses the claimed plurality of digital receivers, wherein each digital receiver provides one upstream channel to a selected one of the MAC circuits (see fig 3, receiver channel port cards each comprise tuner 409 in fig 4).

Considering claim 31, Gorman discloses a single transmit port card 313 and a plurality of receiver channel port cards 306 (see fig 3).

Considering claim 32, Gorman discloses the claimed wherein the downstream port passes all downstream channels and each upstream port passes one or more upstream channel for each downstream channel (page 2 lines 16-20, page 14 lines 29-31).

Considering claim 33, Gorman discloses the broadly claimed splitter which is met by reverse path multiplexor 701 (fig 9) which "splits" ports 1-8 to port A and port B enabled by A/B selector 906.

Claim 36 is met by that discussed above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Unger et al (6,230,326) – Initialization of a cable modem

Lee et al (5,719,862) – Packet-based dynamic skewing for network switch

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308- 5399 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vivek Srivastava whose telephone number is (703) 305 - 4038. The examiner can normally be reached on Monday - Thursday from 8:00 am to 5:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andy Faile, can be reached at (703) 305 - 4380.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 305 - 3900.

VS

4/14/04

VIVEK SRIVASTAVA
PRIMARY EXAMINER